



Environmental
Protection Agency

Division of Surface Water

Application for Authorization Class B Biosolids Beneficial Use Sites

MOQ-04 to 06

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

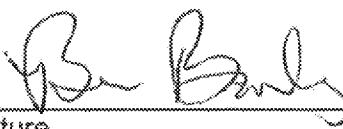
Form BUA-1

Biosolids Treatment Works Information

Treatment works name: Ringler Energy, LLC.		
Ohio NPDES permit #: 4IN00204*AD	County: Morrow	
Mailing address: 2881 County Road 156		
City: Cardington	State: Ohio	Zip: 43315
Operator of record: Bruce Bailey		
Telephone number: (216) 538-1151		
Email address (if available): bbailey@quasarenergygroup.com		

Certification Statement

1. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.
2. I have read and understand Chapter 3745-40 of the Ohio Administrative Code (OAC) and I agree to beneficially use biosolids in accordance with all applicable beneficial use requirements and restrictions established in Chapter 3745-40 of the Ohio Administrative Code.
3. I agree to only beneficially use biosolids that have satisfied a pathogen reduction alternative and a vector attraction reduction option and have metals concentration below the pollutant ceiling concentrations as established in Chapter 3745-40 of the Ohio Administrative Code.
4. I agree to maintain all applicable records established in Chapter 3745-40 of the Ohio Administrative Code.


Signature

10/26/12
Date

This form shall be signed by the operator of record for the treatment works.

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

Form BUA-2

Owner Consent for Beneficial Use

Beneficial use site owner: William Ringler		
Mailing address: 2 Seymour Street		
City: Marengo	State: Ohio	Zip: 43334
Telephone number: (740) 272-3629		
Email address (if available):		

Certification Statement

1. I agree to allow biosolids generated by the treatment plant identified on Form BUA-1 to be beneficially used on my property at agronomic rates.
2. I agree to allow federal, state and local regulatory staff access to the beneficial use site for the purposes of inspecting and authorizing the beneficial use site, beneficially using biosolids, and collecting and analyzing samples from the beneficial use site. I reserve the right to ask the above parties for proper identification at any time.
3. I certify that I am holder of legal title to the property described on application form BUA-4, or am authorized by the holder to give consent for the land application of biosolids, and that there are no restrictions to the granting of consent under this form.

Signature

03 / 19 / 12
Date

In the event the owner of the beneficial use site changes, Form BUA-2 must be revised and resubmitted to Ohio EPA.

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

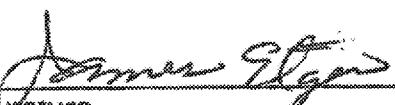
Form BUA-3

Beneficial Use Site Operator Consent for Beneficial Use

Beneficial use site operator: James Etgen		
Mailing address: 1560 County Rd. 159		
City: Ashley	State: Ohio	Zip: 43003
Telephone number: (740) 272-0953		
Email address (if available):		

Certification Statement

I agree to be responsible for complying with all applicable beneficial use requirements established in Chapter 3745-40 of the Ohio Administrative Code.


Signature

3 / 19 / 12
Date

In the event the operator of the beneficial use site changes, Form BUA-3 must be revised and resubmitted to Ohio EPA.

Beneficial User Information

Beneficial user: Ringler Energy, LLC		
Contact person: Bruce Bailey		
Mailing address: 7624 Riverview Rd.		
City: Cleveland	State: Ohio	Zip: 44141
Telephone number: (216) 538-1151		
Email address (if available): bbailey@quasarenergygroup.com		

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

Form BUA-4 Page 1 of 2

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: MOQ-01-04	
Beneficial use site location: County Road 159	
County: Morrow	Township: Westfield
Latitude: 40° 26' 10.64"N	Longitude: 82° 57' 17.92"W

Total acreage proposed for beneficial use: 135.3															
Soil pH (s.u.): 6.27	Soil phosphorus (mg/kg): 62														
Bedrock depth (feet): >3'	Bray Kurtz P1 Mehlich <input checked="" type="checkbox"/>														
Type of crops to be grown:															
<table border="1"><thead><tr><th>Crop Type</th><th>Expected Yield</th></tr></thead><tbody><tr><td>Corn</td><td>175 bu</td></tr><tr><td>Soybeans</td><td>50bu</td></tr><tr><td>Wheat</td><td>75bu</td></tr><tr><td>Pasture</td><td>20 hogs per acre</td></tr><tr><td>Hay</td><td></td></tr><tr><td>Other:</td><td></td></tr></tbody></table>		Crop Type	Expected Yield	Corn	175 bu	Soybeans	50bu	Wheat	75bu	Pasture	20 hogs per acre	Hay		Other:	
Crop Type	Expected Yield														
Corn	175 bu														
Soybeans	50bu														
Wheat	75bu														
Pasture	20 hogs per acre														
Hay															
Other:															

**Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites**

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group
BoA	Blount silt loam, 0 to 2 percent slopes	C/D
Gwd1B1	Glynwood silt loam, 2 to 6 percent slopes	D
Gwg5C2	Glynwood clay loam, ground moraine, 6 to 12 percent slopes, eroded	D
MoD2	Morley silt loam, 12 to 18 percent slopes, eroded	D
Pm	Pewamo silty clay loam	C/D

Are any endangered species or endangered species habitats located on the beneficial use site?

<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
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If "Yes" is marked, list the types of endangered species or endangered species habitat:

Have biosolids been beneficially used on the site since July 20, 1993?

<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
--------------------------	-----	-------------------------------------	----

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	Year of Beneficial Use

The application must also include all of the following.

- A soil map of the proposed beneficial use site.
- An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- A copy of the most recent soil test results identified in this form.

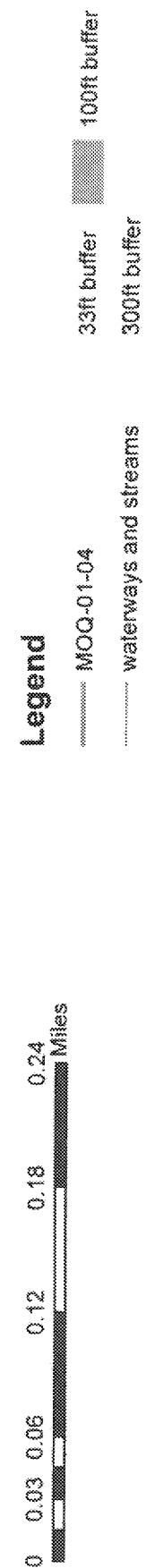
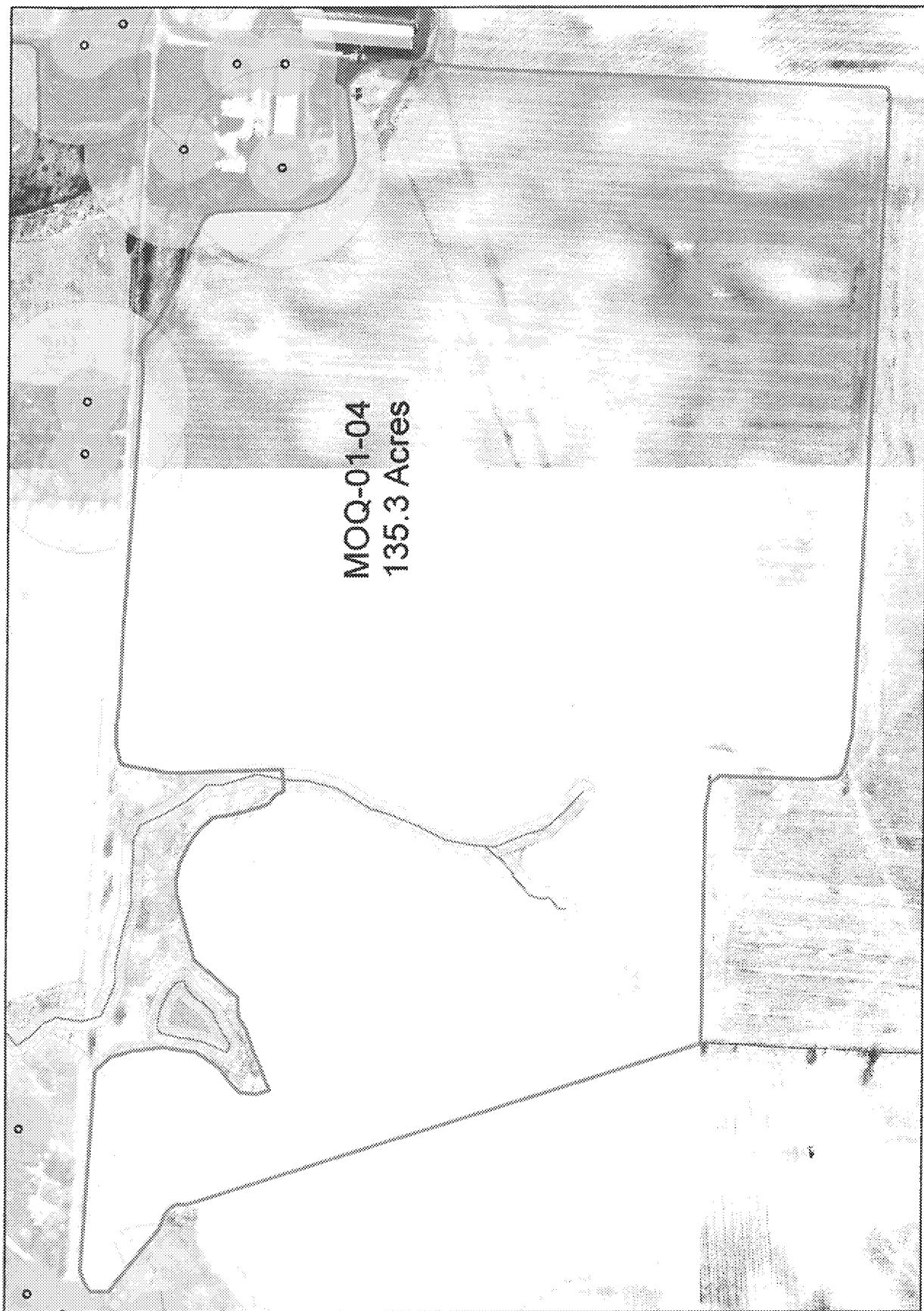


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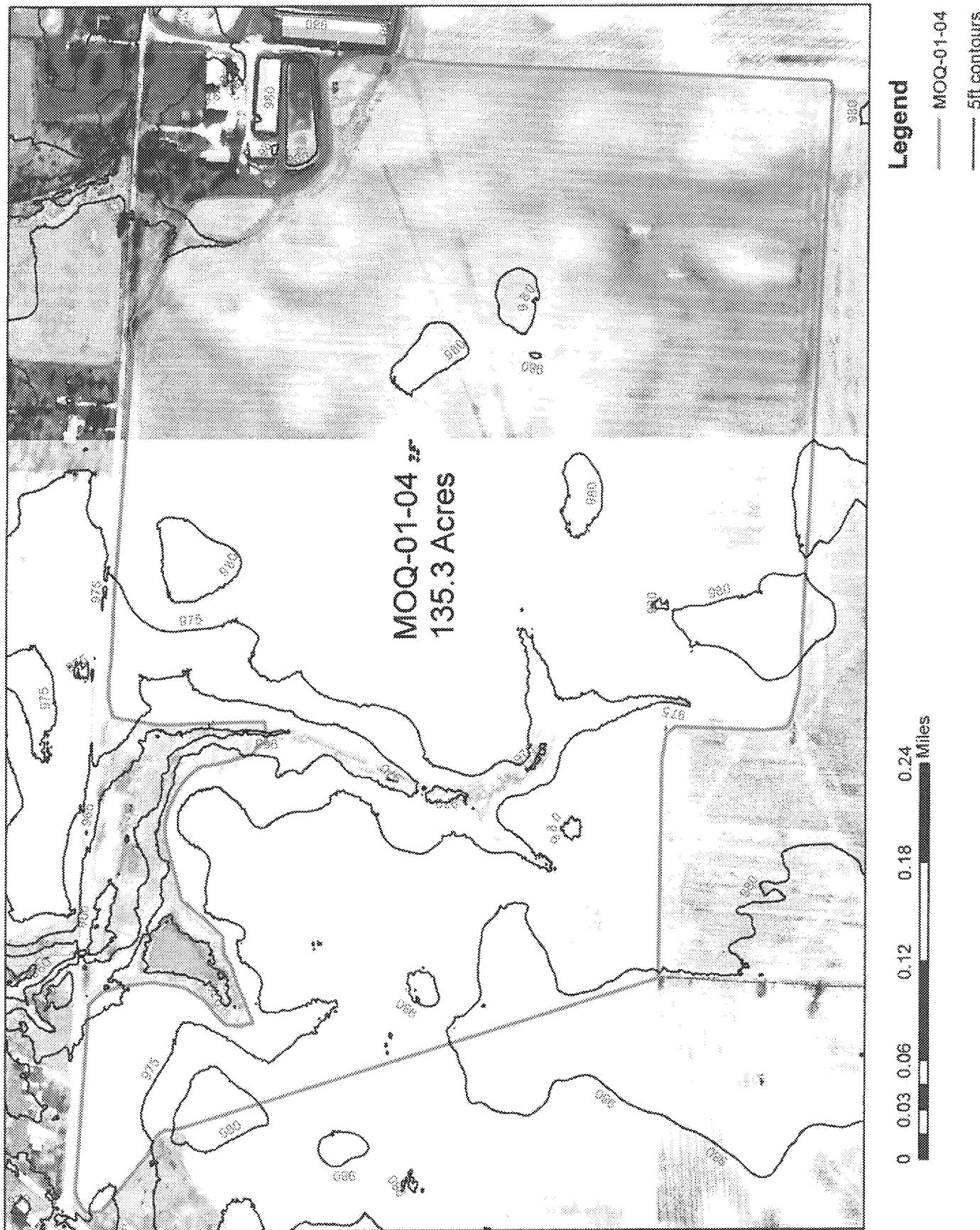
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Ringler Farms MOQ-01-04

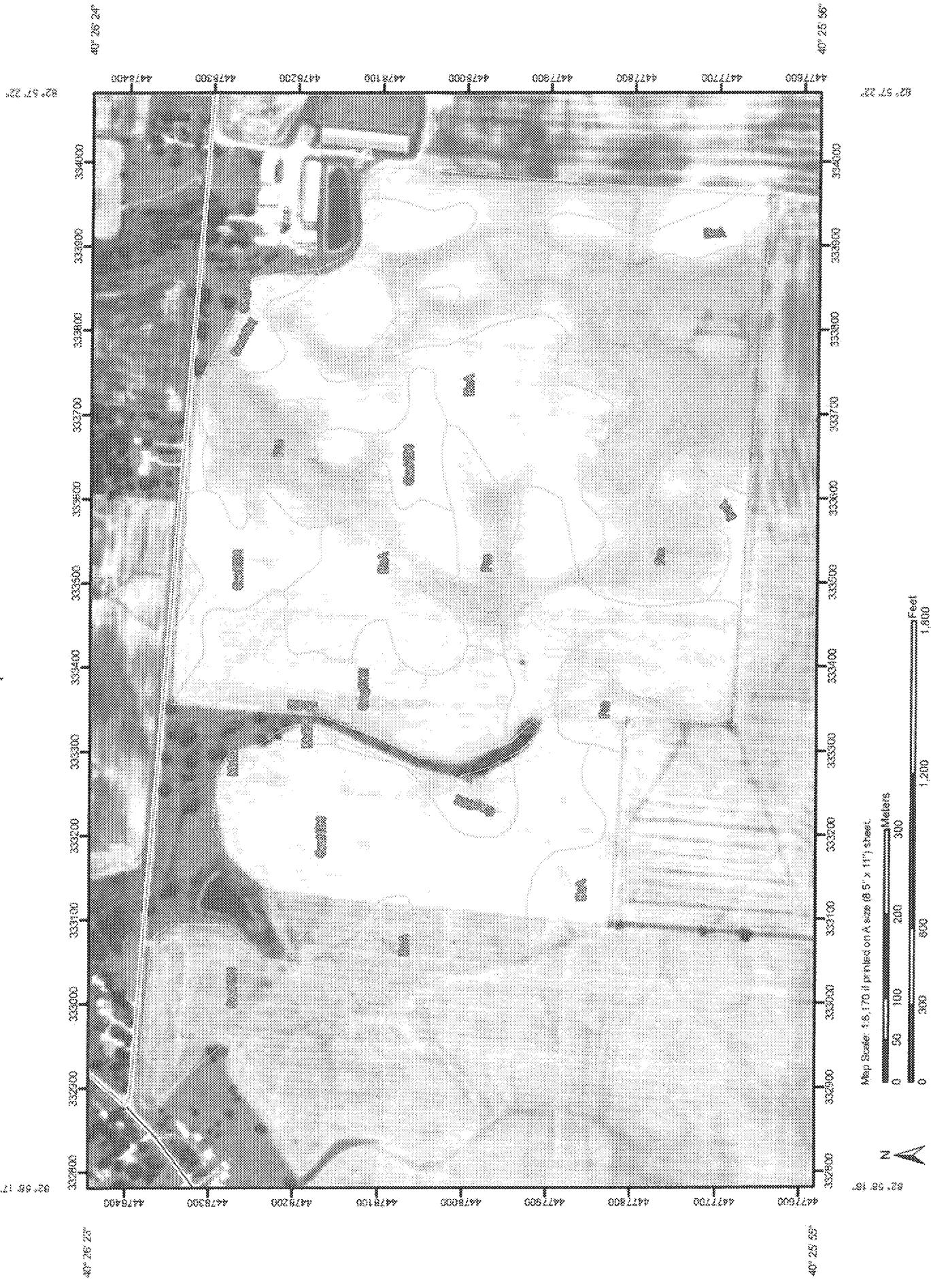


AZ

Ringler Farms MOQ-01-04



Custom Soil Source Report
Soil Map



MAP LEGEND

Area of Interest (AOI)		Area of Interest (AOI)		Very Stony Spot
Soils		Soil Map Units		Wet Spot
Special Point Features		Special Point Features		Other
Blowout		Gully		Gully
Burrow Pit		Short Steep Slope		Short Steep Slope
Clay Spot		Other		Other
Closed Depression		Political Features		Political Features
Gravel Pit		Cities		Cities
Gravelly Spot		Water Features		Water Features
Lava Field		Streams and Canals		Streams and Canals
Marsh or Swamp		Transportation		Transportation
Mire or Quarry		Rails		Rails
Miscellaneous Water		Interstate Highways		Interstate Highways
Perennial Water		US Routes		US Routes
Rock Outcrop		Major Roads		Major Roads
Saline Spot		Local Roads		Local Roads
Sandy Spot				
Severely Eroded Spot				
Sinkhole				
Slide or Slip				
Sodic Spot				
Spill Area				
Stony Spot				

MAP INFORMATION

Map Scale: 1:6,170 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:16,840.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Date: Version 11, Mar 16, 2012

Date(s) aerial images were photographed: 6/29/2004

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Morrow County, Ohio (OH117)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BsA	Blount silt loam, 0 to 2 percent slopes	36.2	26.5%
Gwd1B1	Glynwood silt loam, 2 to 6 percent slopes	47.3	34.6%
Gwg5C2	Glynwood clay loam, ground moraine, 6 to 12 percent slopes, eroded	11.3	8.2%
MoD2	Morley silt loam, 12 to 18 percent slopes, eroded	1.2	0.9%
Pm	Pewamo silty clay loam	40.9	29.9%
Totals for Area of Interest		136.9	100.0%

	Aluminum* (ppm)	144	850	244	888
Other Tests	Soluble Salts (mmhos/cm)				
	Chlorides (ppm)				

* Mehlich III Extractable

lb/A

BROOKSIDE LABORATORIES, INC. SOIL AUDIT AND INVENTORY REPORT

38734-12

Name Ringier Feedlots City Waldo State OH
Independent Consultant Brookside Consultants of Ohio, Inc. Date 07/27/2011

Sample Location	LUDWIG	LUD	LUD	LUD	LUD
Sample Identification	1	2	3	4	5
Lab Number	1085-1	1086-1	1087-1	1088-1	1089-1
Total Exchange Capacity (ME/100 g)	19.44	19.13	14.83	14.70	18.60
pH (H ₂ O 1:1)	7.0	5.8	6.8	6.0	6.4
Organic Matter (humus) %	4.21	3.28	2.55	2.73	3.74
Estimated Nitrogen Release lb/A	93	83	71	75	87
EXCHANGEABLE ANIONS	SOLUBLE SULFUR* ppm	15	13	14	16
	MEHILICH III Br/A P as P ₂ O ₅ ppm of P	202	234	137	234
	BRAY II Br/A P as P ₂ O ₅ ppm of P	44	51	30	51
	OLSEN Br/A P as P ₂ O ₅ ppm of P	97	65	36	66
EXCHANGEABLE CATIONS	CALCIUM* Br/A ppm	5760	4434	3265	3584
	MAGNESIUM* Br/A ppm	2880	2217	2132	1792
	POTASSIUM* Br/A ppm	850	556	606	516
	SODIUM* Br/A ppm	428	278	302	258
	Hydrogen %	354	326	308	332
BASE SATURATION PERCENT					
Calcium %	74.07	57.95	71.59	60.95	67.68
Magnesium %	18.22	12.11	16.90	14.63	14.52
Potassium %	2.33	2.27	2.65	2.90	2.69
Sodium %	0.98	3.89	1.28	1.12	0.91
Other Bases %	4.40	5.00	3.60	5.30	5.00
Hydrogen %	0.00	21.00	3.00	15.00	9.00
EXTRACTABLE MINORS					
Boron* (ppm)	0.71	0.91	0.66	0.63	0.64
Iron* (ppm)	332	245	233	211	243
Manganese* (ppm)	12	26	51	59	38
Copper* (ppm)	5.03	3.66	2.63	2.50	4.38
Zinc* (ppm)	6.82	4.04	12.84	6.52	4.22
Aluminum* (ppm)	791	874	741	629	837
OTHER TESTS	Soluble Salts (mmhos/cm)				
	Chlorides (ppm)				

* Mehlich III Extractable

lb/A

BROOKSIDE LABORATORIES, INC.
SOIL AUDIT AND INVENTORY REPORT

38734-12

Name Ringler Feedlots City Waldo State OH
Independent Consultant Brookside Consultants of Ohio, Inc. Date 07/27/2011

Sample Location	LUDWIG	LUD	LUD				
Sample Identification		6	7				
Lab Number		1090-1	1091-2				
Total Exchange Capacity (ME/100 g)		14.96	15.55				
pH (H ₂ O 1:1)		6.4	5.5				
Organic Matter (humus) %		3.17	2.90				
Estimated Nitrogen Release lb/A		62	78				
EXCHANGABLE ANIONS	SOLUBLE SULFUR* ppm		14	19			
	MEHDLICH III B/A P as P ₂ O ₅ , ppm of P		247	64			
	BRAY II B/A P as P ₂ O ₅ , ppm of P		54	14			
	GISEN B/A P as P ₂ O ₅ , ppm of P		339	32			
			74	7			
	CALCIUM* lb/A		3962	3040			
	MAGNESIUM* lb/A		1951	1520			
	POTASSIUM* lb/A		568	468			
	SODIUM* lb/A		384	224			
			344	226			
EXCHANGABLE CATIONS	Hydrogen ppm		372	113			
			72	62			
			36	31			
	BASE SATURATION PERCENT						
	Calcium %		66.21	48.87			
	Magnesium %		15.82	13.00			
EXTRACTABLE MINORS							
Boron* (ppm)		0.61	0.37				
Iron* (ppm)		223	164				
Manganese* (ppm)		781	107				
Copper* (ppm)		3.23	1.75				
Zinc* (ppm)		5.59	2.30				
Aluminum* (ppm)		742	1119				
OTHER TESTS	Soluble Salts (mmhos/cm)						
	Chlorides (ppm)						

* Mehlich III Extractable

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

Form BUA-4 Page 1 of 2

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: MOQ-01-05	
Beneficial use site location: 1673 County Rd. 159	
County: Morrow	Township: Westfield
Latitude: 40° 26' 23.52"N	Longitude: 82° 57' 46.41"W

Total acreage proposed for beneficial use: 77.0															
Soil pH (s.u.): 6.20	Soil phosphorus (mg/kg): 38.5														
Bedrock depth (feet): >3'	Bray Kurtz P1 Mehlich <input checked="" type="checkbox"/> <input type="checkbox"/>														
Type of crops to be grown:															
<table border="1"><thead><tr><th>Crop Type</th><th>Expected Yield</th></tr></thead><tbody><tr><td>Corn</td><td>175bu</td></tr><tr><td>Soybeans</td><td>50bu</td></tr><tr><td>Wheat</td><td>75bu</td></tr><tr><td>Pasture</td><td>20 hogs per acre</td></tr><tr><td>Hay</td><td></td></tr><tr><td>Other:</td><td></td></tr></tbody></table>		Crop Type	Expected Yield	Corn	175bu	Soybeans	50bu	Wheat	75bu	Pasture	20 hogs per acre	Hay		Other:	
Crop Type	Expected Yield														
Corn	175bu														
Soybeans	50bu														
Wheat	75bu														
Pasture	20 hogs per acre														
Hay															
Other:															

**Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites**

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group
BoA	Blount silt loam, 0 to 2 percent slopes	C/D
Gwd1B1	Glynwood silt loam, 2 to 6 percent slopes	D
Pm	Pewamo silty clay loam	C/D

Are any endangered species or endangered species habitats located on the beneficial use site?

<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
--------------------------	-----	-------------------------------------	----

If "Yes" is marked, list the types of endangered species or endangered species habitat:

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Have biosolids been beneficially used on the site since July 20, 1993?

<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
--------------------------	-----	-------------------------------------	----

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	Year of Beneficial Use

The application must also include all of the following.

- A soil map of the proposed beneficial use site.
- An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- A copy of the most recent soil test results identified in this form.



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Material on Norton

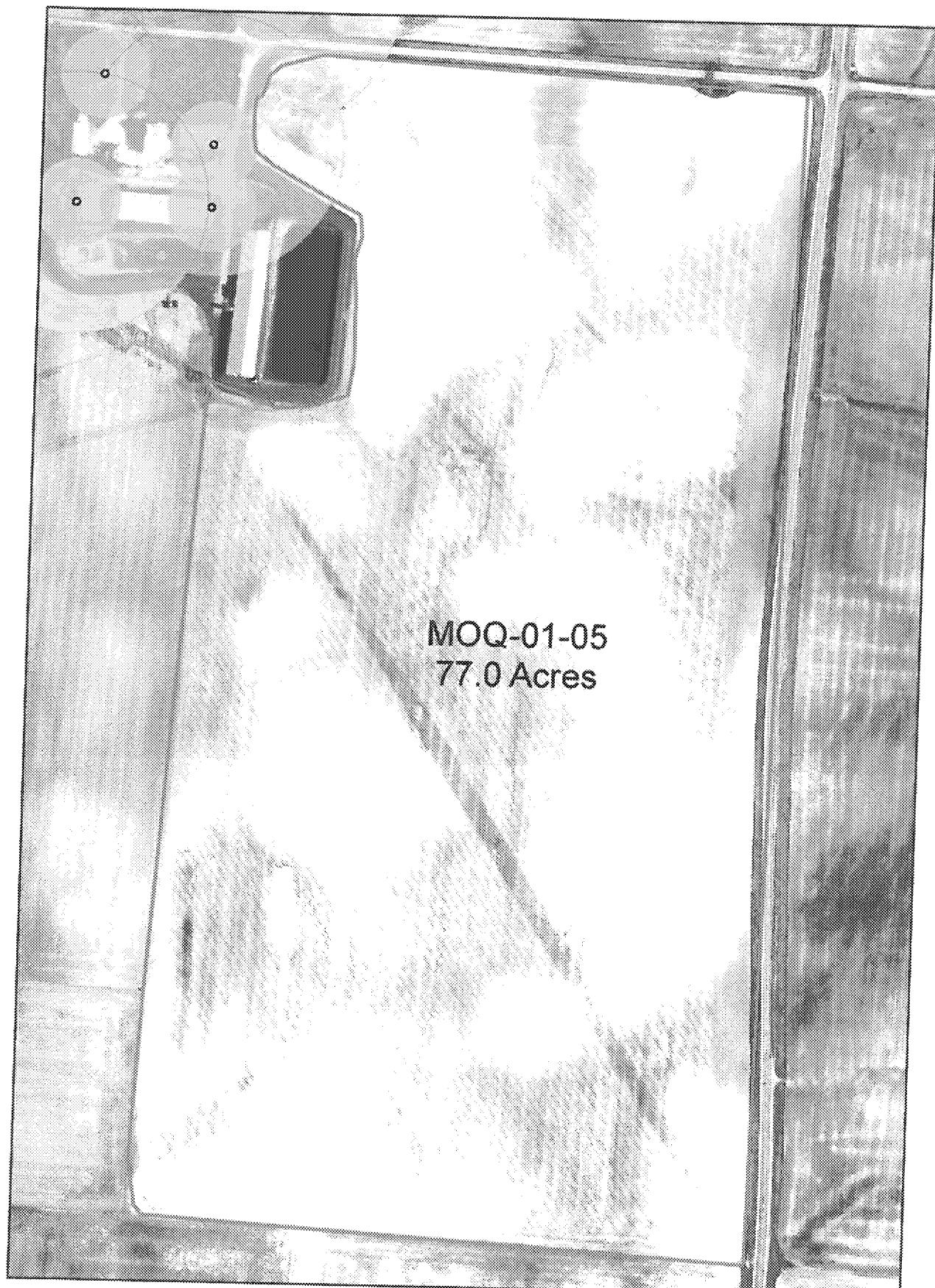
Google Earth

Eye alt 35275 ft C

Map Date 4/6/2012 1 1929

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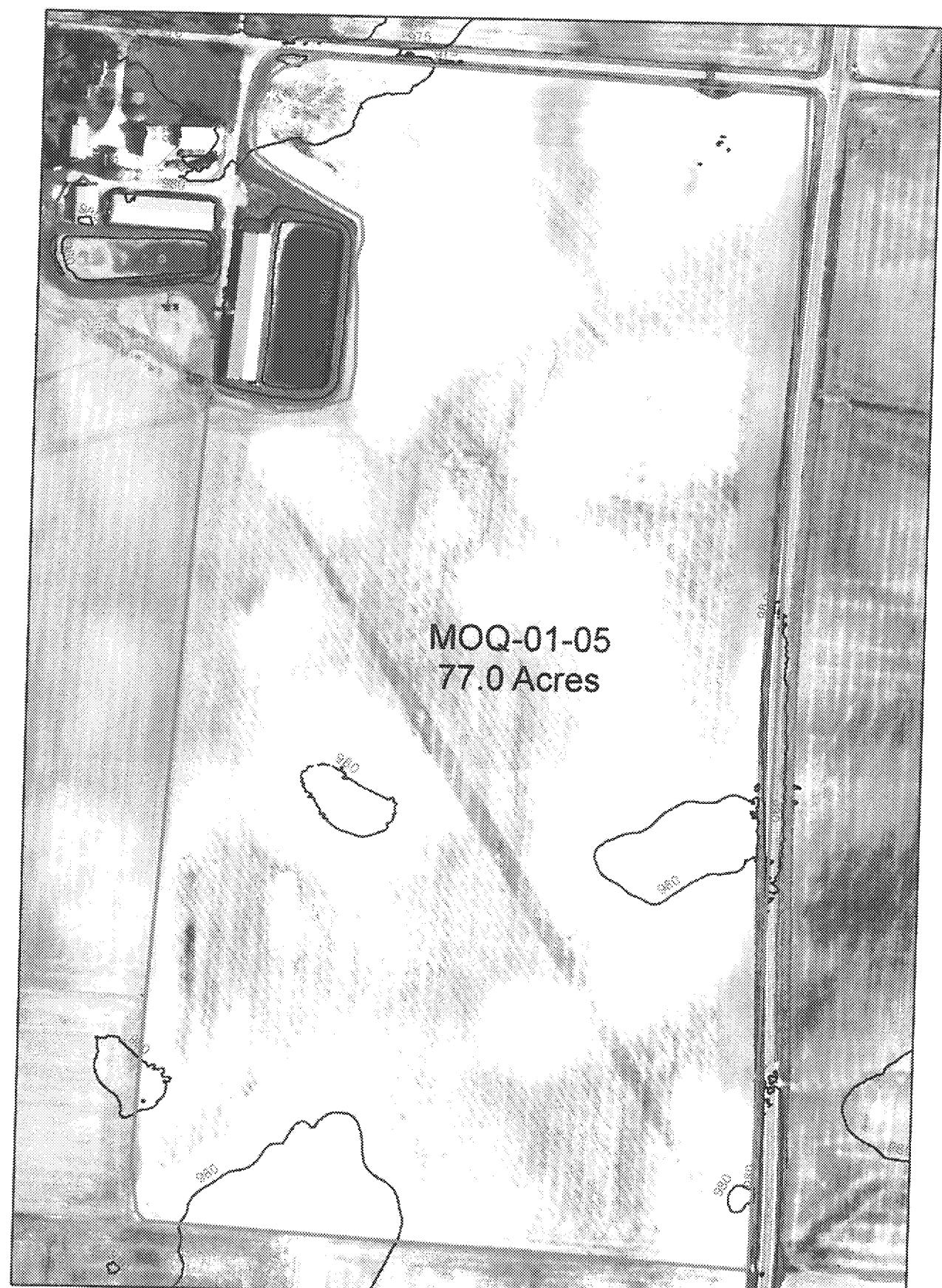
Ringler Farms MOQ-01-05



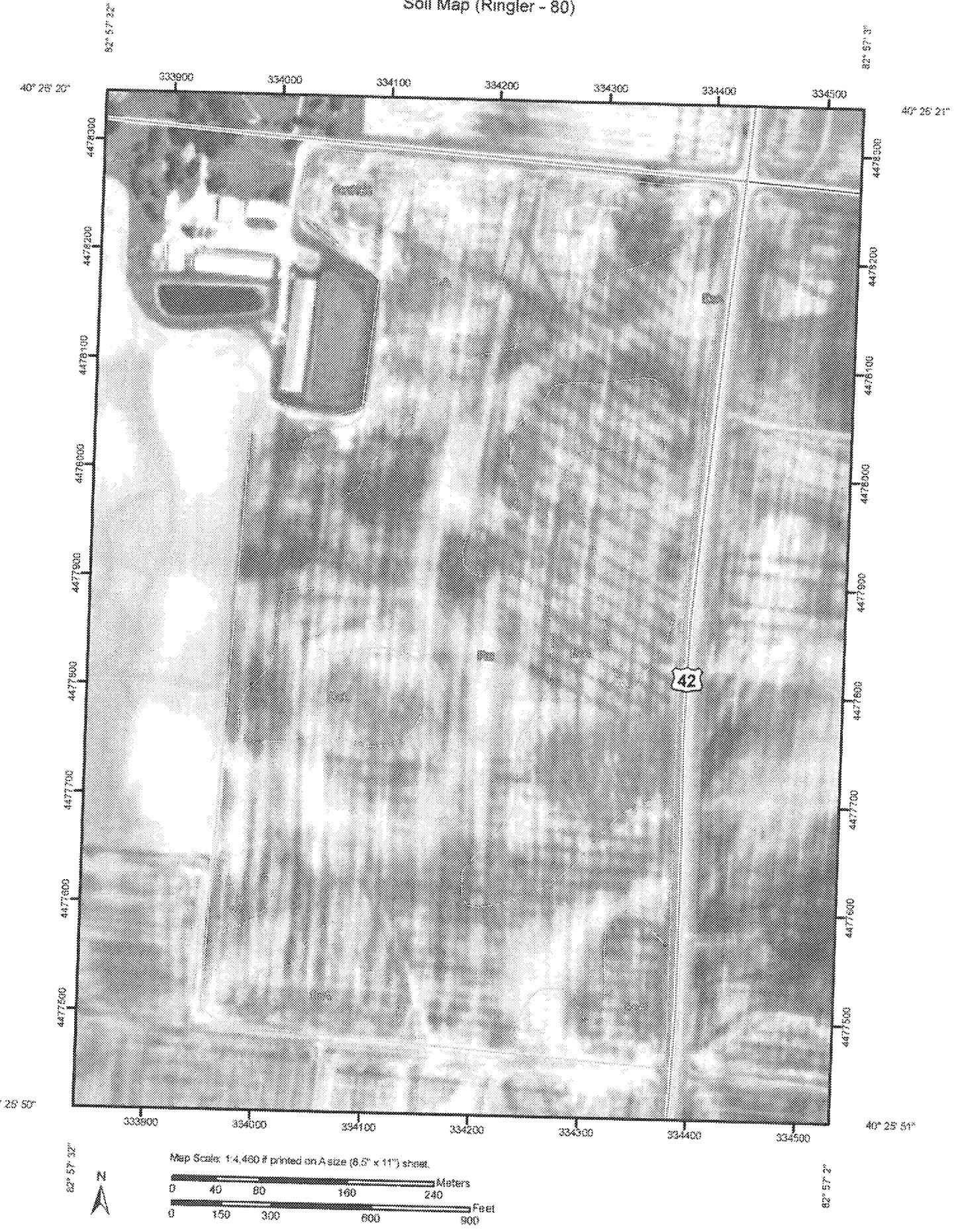
Legend

0	0.025	0.05	0.1	0.15	0.2	MOQ-01-05	waterways and streams	300ft buffer
							33ft buffer	100ft buffer

Ringler Farms MOQ-01-05



Custom Soil Resource Report
Soil Map (Ringler - 80)



MAP LEGEND

Area of Interest (AOI)		Area of Interest (AOI)
Soils		Soil Map Units
Special Point Features		Blowout
		Borrow Pit
		Clay Spot
		Closed Depression
		Gravel Pit
		Gravely Spot
		Landfill
		Lava Flow
		Marsh or Swamp
		Mine or Quarry
		Miscellaneous Water
		Parental Water
		Rock Outcrop
		Saline Spot
		Sandy Spot
		Severely Eroded Spot
		Sinkhole
		Slide or Slip
		Sodic Spot
		Spoil Area
		Stony Spot

MAP INFORMATION

Map Scale: 1:4,460 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS Certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Date: Version 11, Mar 16, 2012

Date(s) aerial images were photographed: 6/28/2004

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Ringler - 80)

Morrow County, Ohio (OH117)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BoA	Blount silt loam, 0 to 2 percent slopes	31.4	39.6%
Gwd1B1	Glynwood silt loam, 2 to 6 percent slopes	1.6	2.0%
Pm	Pewamo silty clay loam	46.3	58.4%
Totals for Area of Interest		79.3	100.0%

From: Alex Ringler <alexringler@me.com>
 Subject: ringler soil samples
 Date: February 13, 2012 10:32:35 AM EST
 To: Bruce Bailey <cbbailey@quasarenergygroup.com>
 Cc: smullins@quasarenergygroup.com

20 Attachments, 3.1 MB

lb/A

BROOKSIDE LABORATORIES, INC.
SOIL AUDIT AND INVENTORY REPORT

38734-12

Name Ringler Feedlots City Waldo State OH
Independent Consultant Brookside Consultants of Ohio, Inc. Date 07/27/2011

Sample Location	80	80	80	80
Sample Identification	1	2	3	4
Lab Number	1081-1	1082-1	1083-1	1084-1
Total Exchange Capacity (ME/100 g)	16.34	15.41	16.46	18.24
pH (H ₂ O 1:1)	6.8	5.9	6.2	5.9
Organic Matter (humus) %	2.92	2.46	2.97	2.93
Estimated Nitrogen Release lb/A	78	69	79	79
PRECIPITABLE ANIONS	SOLUBLE SULFUR* ppm	13	13	11
	MEHLICH III B/A P as P ₂ O ₅ ppm of P	181	110	119
	BRAY II B/A P as P ₂ O ₅ ppm of P	22	24	25
	OLSEN B/A P as P ₂ O ₅ ppm of P	137	124	192
PRECIPITABLE CATIONS	CALCIUM* B/A ppm	4595	3489	4716
	MAGNESIUM* B/A ppm	2298	1744	2358
	POTASSIUM* B/A ppm	732	608	702
	SODIUM* B/A ppm	355	304	351

BASE SATURATION PERCENT

Calcium %	70.32	56.59	63.87	56.14
Magnesium %	18.67	16.44	15.85	16.86
Potassium %	2.59	2.29	2.19	2.39
Sodium %	0.82	1.19	0.87	1.02
Other Bases %	4.50	5.80	5.20	5.60
Hydrogen %	3.00	18.00	12.00	18.00

EXTRACTABLE MINORS

Boron* (ppm)	0.76	1.36	0.56	1.15
Iron* (ppm)	188	198	237	205
Manganese* (ppm)	31	26	21	37
Copper* (ppm)	3.09	2.59	3.19	3.34
Zinc* (ppm)	4.10	2.67	2.10	2.75

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

Form BUA-4 Page 1 of 2

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: MOQ-01-06	
Beneficial use site location: 3194 County Road 21	
County: Morrow	Township: Westfield
Latitude: 40° 25' 41.35"N	Longitude: 82° 58' 40.11"W

Total acreage proposed for beneficial use: 156.1															
Soil pH (s.u.): 5.65	Soil phosphorus (mg/kg): 22.25														
Bedrock depth (feet): >3'	Bray Kurtz P1 <input checked="" type="checkbox"/> Mehlich <input type="checkbox"/>														
Type of crops to be grown:															
<table border="1"><thead><tr><th>Crop Type</th><th>Expected Yield</th></tr></thead><tbody><tr><td>Corn</td><td>175bu</td></tr><tr><td>Soybeans</td><td>50bu</td></tr><tr><td>Wheat</td><td>75bu</td></tr><tr><td>Pasture</td><td>20 hogs per acre</td></tr><tr><td>Hay</td><td></td></tr><tr><td>Other:</td><td></td></tr></tbody></table>		Crop Type	Expected Yield	Corn	175bu	Soybeans	50bu	Wheat	75bu	Pasture	20 hogs per acre	Hay		Other:	
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Other:															

**Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites**

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group
BoA	Blount silt loam, 0 to 2 percent slopes	C/D
Bob	Blount silt loam, 2 to 6 percent slopes	C/D
Gwd1B1	Glynwood silt loam, 2 to 6 percent slopes	D
Gwg5C2	Glynwood clay loam, ground moraine, 6 to 12 percent slopes, eroded	D
Pm	Pewamo silty clay loam	C/D

Are any endangered species or endangered species habitats located on the beneficial use site?

<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
--------------------------	-----	-------------------------------------	----

If "Yes" is marked, list the types of endangered species or endangered species habitat:

--

Have biosolids been beneficially used on the site since July 20, 1993?

<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
--------------------------	-----	-------------------------------------	----

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	Year of Beneficial Use

The application must also include all of the following.

- A soil map of the proposed beneficial use site.
- An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- A copy of the most recent soil test results identified in this form.

East 7180 ft

Google Earth

40°25'42.10" N 82°58'41.15" W elev 974 ft

© 2012 Google

Agency Date 4/5/2012 10:38:33

ED_014244_00000884-00028

MOC 01-08

County Rd 138

Shops Rd

Westfield Prospect Avenue Rd

Gold Rd 158

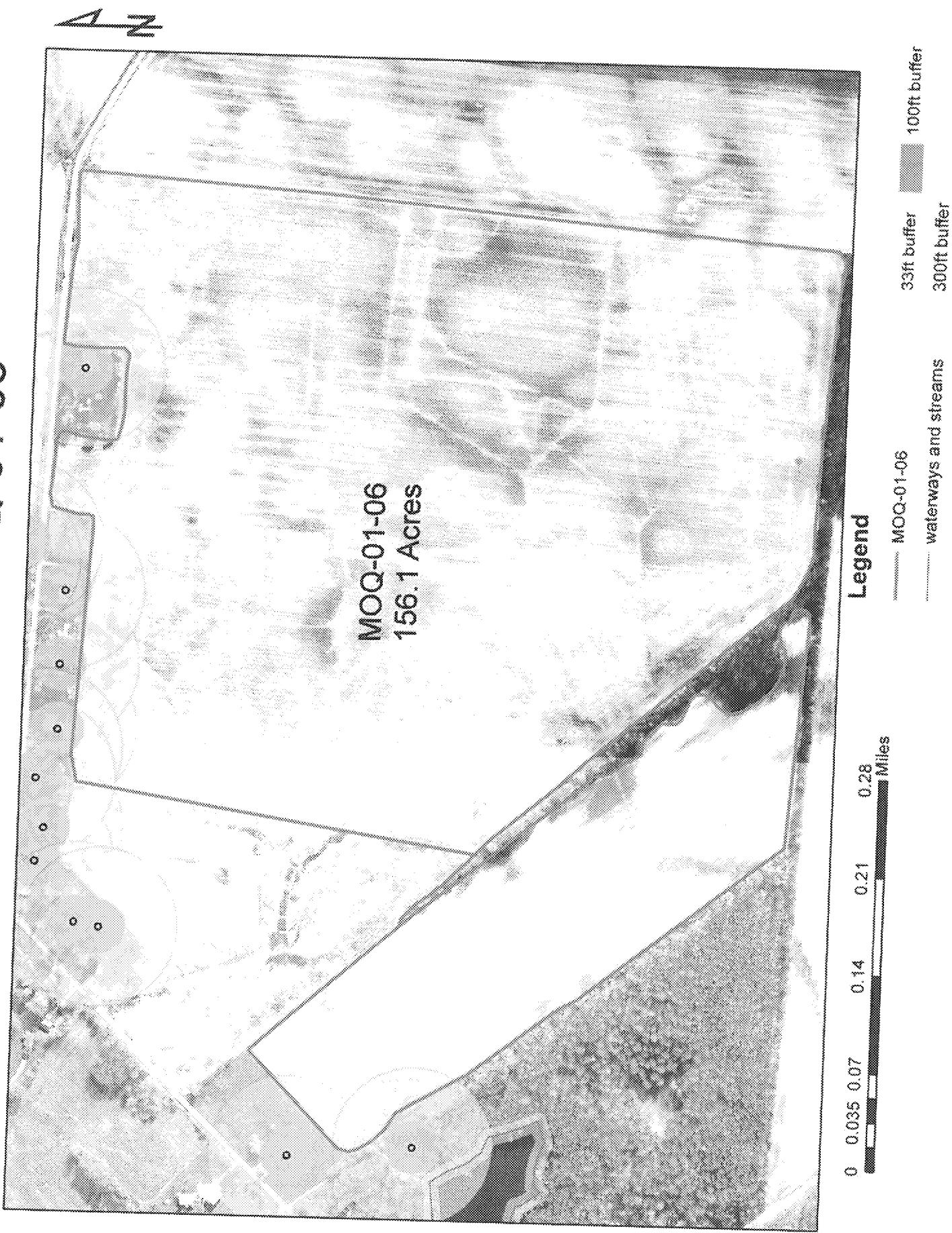
COR 021

N

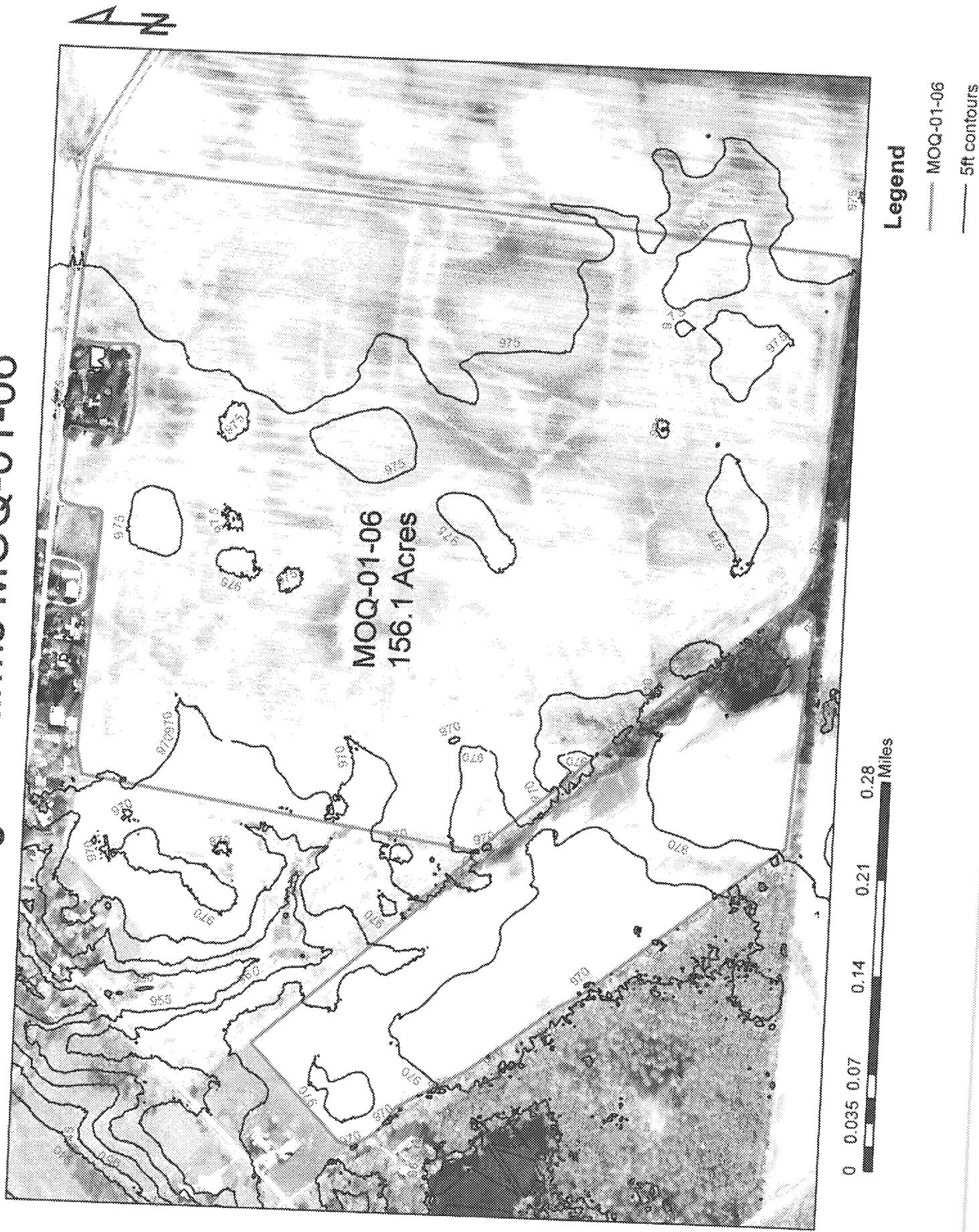


ED_014244_00000884-00029

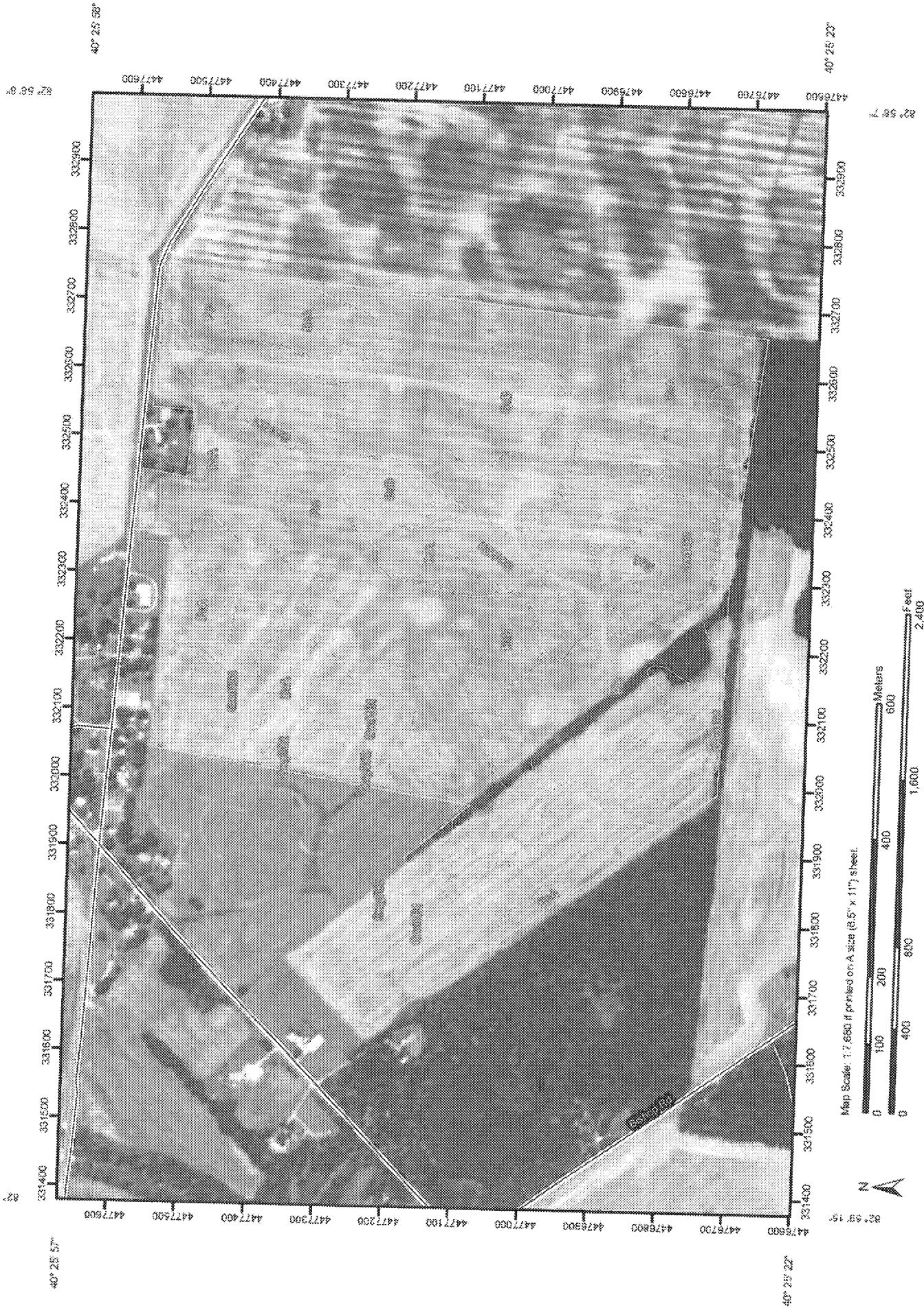
Ringler Farms MOQ-01-06



Ringler Farms MOQ-01-06



Custom Soil
Soil Map
Source Report



ED_014244_00000884-00032

MAP LEGEND

Area of Interest (AOI)		Area of Interest (AOI)
Soils		
Soil Map Units		Soil Map Units
Special Point Features		
Blowout		Blowout
Borrow Pit		Borrow Pit
Clay Spot		Clay Spot
Closed Depression		Closed Depression
Gravel Pit		Gravel Pit
Gravelly Spot		Gravelly Spot
Landfill		Landfill
Soil Spot		Soil Spot
Special Line Features		
Gully		Gully
Short Steep Slope		Short Steep Slope
Other		Other
Political Features		
Cities		Cities
Water Features		
Streams and Canals		Streams and Canals
Transportation		
Rail		Rail
Interstate Highways		Interstate Highways
US Routes		US Routes
Major Roads		Major Roads
Local Roads		Local Roads
Perennial Water		Perennial Water
Rock Outcrop		Rock Outcrop
Saline Spot		Saline Spot
Sandy Spot		Sandy Spot
Severely Eroded Spot		Severely Eroded Spot
Sinkhole		Sinkhole
Slide or Slip		Slide or Slip
Soilic Spot		Soilic Spot
Spill Area		Spill Area
Story Spot		Story Spot

MAP INFORMATION

Map Scale: 1:7,680 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Date: Version 11, Mar 16, 2012

Date(s) aerial images were photographed: 5/29/2004

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Morrow County, Ohio (OH117)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BoA	Blount silt loam, 0 to 2 percent slopes	41.9	24.7%
BoB	Blount silt loam, 2 to 6 percent slopes	16.2	9.5%
Gwd1B1	Glynwood silt loam, 2 to 6 percent slopes	45.0	26.6%
Gwg5C2	Glynwood clay loam, ground moraine, 6 to 12 percent slopes, eroded	1.5	0.9%
Pm	Pewamo silty clay loam	65.0	38.3%
Totals for Area of Interest		169.5	100.0%

lb/A

BROOKSIDE LABORATORIES, INC.
SOIL AUDIT AND INVENTORY REPORT

36734-13

Name Ringler Feedlot

City Waldo

State OH

Independent Consultant Brookside Consultants of Ohio, Inc.

Date 02/10/2012

Sample Location DC		1 d 8 in	2 d 8 in	3 d 8 in
Sample Identification				
Lab Number	0158-1		0159-1	0160-1
Total Exchange Capacity (ME-100 g)	13.84		15.55	14.62
pH (H ₂ O 1:1)	5.7		5.9	5.4
Organic Matter (humus) %	2.15		2.73	2.61
Estimated Nitrogen Release lb/A	84		100	96
SOLUBLE SULFUR* ppm				
MOLUCH III lb/A P as P ₂ O ₅	55		92	128
BRAY II lb/A P as P ₂ O ₅	92		116	128
OLESEN lb/A P as P ₂ O ₅	15		19	31
EXCHANGING ANIONS				
CALCIUM* ppm	2652		4875	3512
MAGNESIUM* ppm	1332		1828	1317
KATION CATIONS				
POTASSIUM* ppm	864		752	589
SODIUM* ppm	324		283	221
Hydrogen	735		391	289
	89		105	112
	61		63	72
	23		36	32
BASE SATURATION PERCENT				
Calcium %	48.12		58.78	45.04
Magnesium %	19.51		18.11	12.60
Potassium %	1.63		1.80	1.96
Sodium %	0.72		0.73	0.80
Other Bases %	6.00		5.60	6.60
Hydrogen %	24.00		18.00	33.00
EXTRACTABLE MINERALS				
Boron* (ppm)	0.39		0.82	0.63
Iron* (ppm)	134		112	164
Manganese* (ppm)	35		36	34
Copper* (ppm)	1.69		2.85	1.95
Zinc* (ppm)	1.30		1.93	1.95
Aluminum* (ppm)	837		792	863
OTHER TESTS				
Soluble Salts (mmhos/cm)				
Chlorides (ppm)				

d - specific depth

* Mehlich III Extractable

lb/A

38734-13

BROOKSIDE LABORATORIES, INC.
SOIL AUDIT AND INVENTORY REPORT

Name Ringler Feedlot City Waldo State OH

Independent Consultant Brookside Consultants of Chic. Inc. Date 02/10/2012

Sample Location	DC	4	5	6
Sample Identification	d 8 in	d 8 in	d 8 in	
Lab Number	0161-1	0162-1	0163-1	
Total Exchange Capacity (ME/100 g)	15.28	12.68	14.47	
pH ($H_2O 1:1$)	5.7	5.7	5.7	
Organic Matter (humus) %	3.15	2.82	2.53	
Estimated Nitrogen Release lb/A	109	101	95	
EXCHANGABLE ANIONS				
SOLUBLE SULFUR* ppm	13	13	13	
MEHDLICH III MOSKOWSKI EXTRACTANT Fas P_2O_5 , ppm of P	183	110	159	
BRAY II B.A. Fas P_2O_5 , ppm of P	30	18	26	
OLSEN B.A. Fas P_2O_5 , ppm of P	214	116	177	
	35	19	23	
EXCHANGABLE CATIONS				
CALCIUM* B/A ppm	4133	3456	4064	
MAGNESIUM* B/A ppm	1550	1295	1524	
POTASSIUM* B/A ppm	784	595	669	
SODIUM* B/A ppm	281	223	251	
	387	347	323	
	145	130	121	
	77	125	67	
	23	47	25	
BASE SATURATION PERCENT				
Calcium %	50.72	51.10	52.66	
Magnesium %	16.03	14.66	14.46	
Potassium %	2.43	2.63	2.14	
Sodium %	0.83	1.61	0.75	
Other Bases %	6.00	6.00	6.00	
Hydrogen %	24.00	24.00	24.00	
EXTRACTABLE MINORS				
Boron* (ppm)	0.70	0.48	0.59	
Iron* (ppm)	173	123	147	
Manganese* (ppm)	41	37	41	
Copper* (ppm)	2.83	1.89	2.09	
Zinc* (ppm)	3.35	1.56	2.32	
Aluminum* (ppm)	775	734	779	
OTHERS				
Soluble Salts (meqhos/cm)				
Chlorides (ppm)				

d = specific depth

* Mehlich III Extractable

1b/A

BROOKSIDE LABORATORIES, INC.
SOIL AUDIT AND INVENTORY REPORT

38734-13

Name Ringier Feedlots City Waldo State OH
 Independent Consultant Brookside Consultants of Ohio, Inc. Date 02/10/2012

Sample Location	DC	7	8	
Sample Identification		d = 8 in	d = 8 in	
Lab Number	0164-1		0165-1	
Total Exchange Capacity (ME/100 g)	12.87		13.57	
pH (H ₂ O 1:1)	5.6		5.5	
Organic Matter (humus) %	2.59		2.83	
Estimated Nitrogen Release lb/A	96		103	
SOLUBLE SULFUR*	ppm	14	17	
MELILICH III	lb/A P as P ₂ O ₅	92	169	
GRAY II	lb/A P as P ₂ O ₅	15	31	
OLSEN	lb/A P as P ₂ O ₅	104	140	
	ppm of P	17	23	
EXCHANGABLE ANIONS				
CALCIUM*	lb/A	3403	3416	
	ppm	1276	1281	
MAGNESIUM*	lb/A	537	573	
	ppm	224	215	
POTASSIUM*	lb/A	243	325	
	ppm	91	122	
SODIUM*	lb/A	72	75	
	ppm	27	28	
BASE SATURATION PERCENT				
Calcium %		49.57	47.20	
Magnesium %		14.50	13.20	
Potassium %		1.81	2.31	
Sodium %		0.91	0.90	
Other Bases %		6.20	6.40	
Hydrogen %		27.00	30.00	
EXTRACTABLE MINORS				
Boron* (ppm)		0.48	0.52	
Iron* (ppm)		135	151	
Manganese* (ppm)		33	40	
Copper* (ppm)		1.82	1.87	
Zinc* (ppm)		1.69	2.58	
Aluminum* (ppm)		717	938	
OTHER TESTS				
Soluble Salts (mmhos/cm)				
Chlorides (ppm)				

d = specific depth

* Mehlich III Extractable